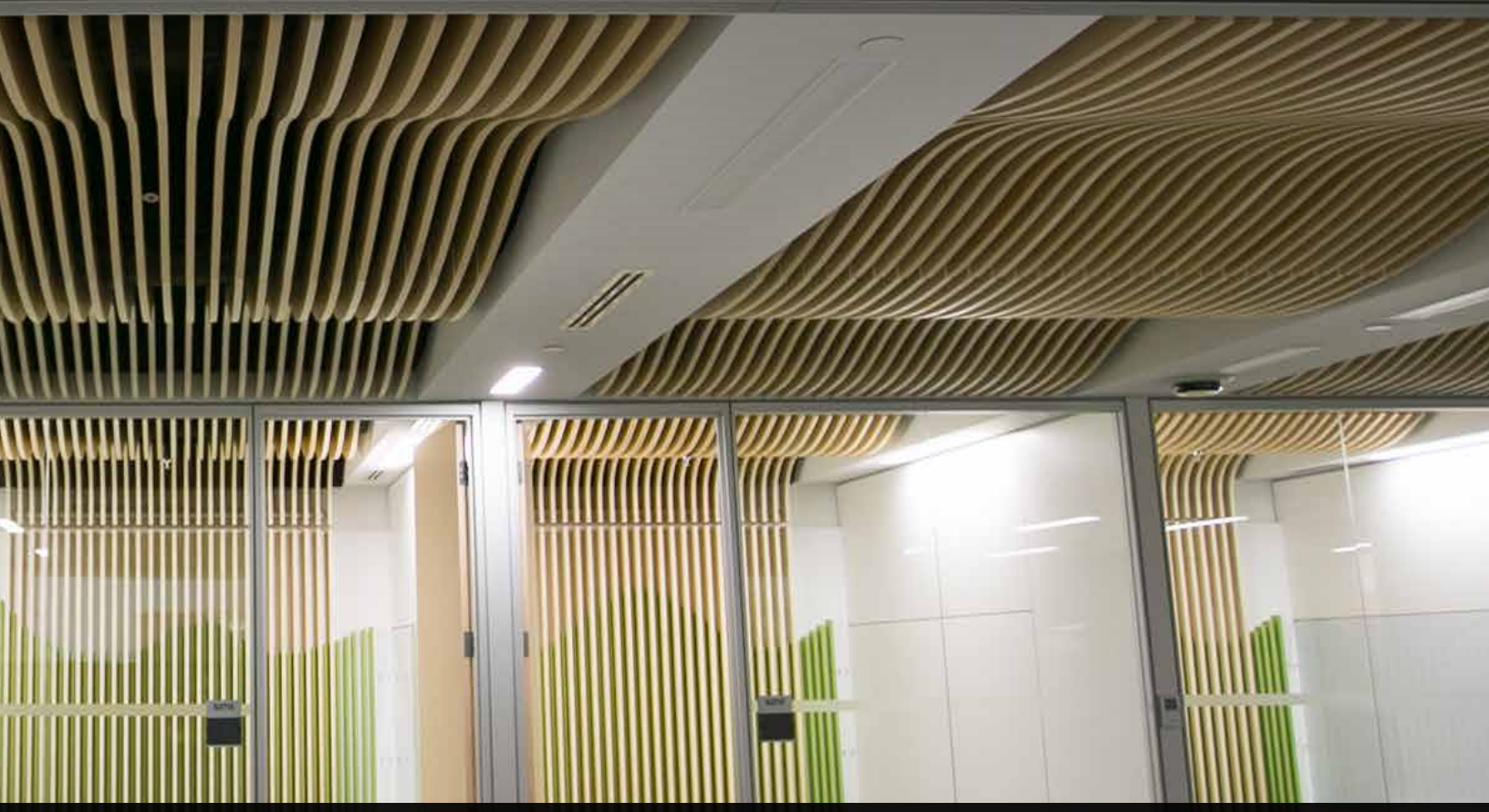
CASE STUDY

TWIST AND TURN

CONSTRUCTION EXCELLENCE
GOLD AWARD
CISCA
Ceilings & Interior Systems Construction Association
March 2021

DOUGLAS COLLEGE NEW WESTMINSTER, B.C.



9 WOOD

DIVISION 9 ENGINEERED-TO-ORDER WOOD CEILINGS

A new student services hub is part of a $10.5M renovation at Douglas College, New Westminster, B.C. The 25,000 SF space centralizes enrollment services, career services and more. 9Wood, Springfield, Ore., provided 2,322 SF of undulating cross piece wood grille ceilings and walls.

“We used a lot of imagination to build that ceiling. I’ve never seen a ceiling like it in all my years.”

When it opened in summer 2020, the renovated student services center of a western college featured an open floor plan and a 2,322 SF undulating cross-piece wood grille ceiling.

The wave ceiling is part of a new typology — a new way to think about the student center as a one-stop shop,” says Susan Ockwell, project architect, HCMA Architecture + Design, Vancouver, B.C. “It helps bring students off of a common concourse, a busy atrium, and into the student center.”

Four Weeks Saved. HCMA Architecture + Design, Benton & Overbury, the Surrey, B.C.-based the ceiling subcontractor and 9Wood worked together on some last-minute changes that affected the ceiling’s geometry. Bulkheads were moved, and the location of a movable wall was adjusted.

“We had a lot of discovery during the submittal process as we strived to maintain the construction timeline for the installation,” says Ben Chase, project manager at 9Wood.

The timeline called for the ceiling work to begin in April 2020, but 9Wood didn’t receive field measurements or a signed production order until mid-March. Normally, measuring the as-built, accepting submittals, placing orders and shipping the product takes about 12 weeks. 9Wood accomplished everything in 8 weeks.

After the ceilings were shipped, just as installation began, reveals of 9/16″ were adjusted to 1″ at certain points.

“That affected the geometry of the ceiling,” Chase says. “Even if the suspension geometry stays the same, if you grow or shrink one panel, it changes all the panels.”

The ceiling’s unusual feature is its undulation. The geometry of the wood slats had to be well planned and executed.

PROJECT

Student Services Center
Douglas College
New Westminster, B.C.

DESIGN ARCHITECT

HCMA Architecture + Design
Vancouver, B.C.

GENERAL CONTRACTOR

Turner Construction
Vancouver, B.C.

CEILING AND WALL CONTRACTOR

Benton & Overbury
Surrey, B.C.

SYSTEMS

Custom engineered wood ceilings
from 9Wood
Springfield, Ore.

9Wood produced wall and ceiling grilles that lined up without knowing the geometry of the suspension, which was decided upon in the field.

The wood grille ceilings undulate downward and, using 154 SF of radius or "boomerang" grilles, line up perfectly with 422 SF of wood grille walls.

> *"WOOD WAS THE PERFECT ACOUSTIC TREATMENT FOR THIS VERY LARGE SPACE*

To make the cuts in the field, Benton & Overbury bought a beam cutter with a 16-5/16″ blade.

Field-Built Suspension. Another challenge involved the suspension system. Initially, the design called for using standard ceiling grid and cross tees, running the mains in the same direction as the undulations. But, the subcontractor and the engineer adjusted this approach.

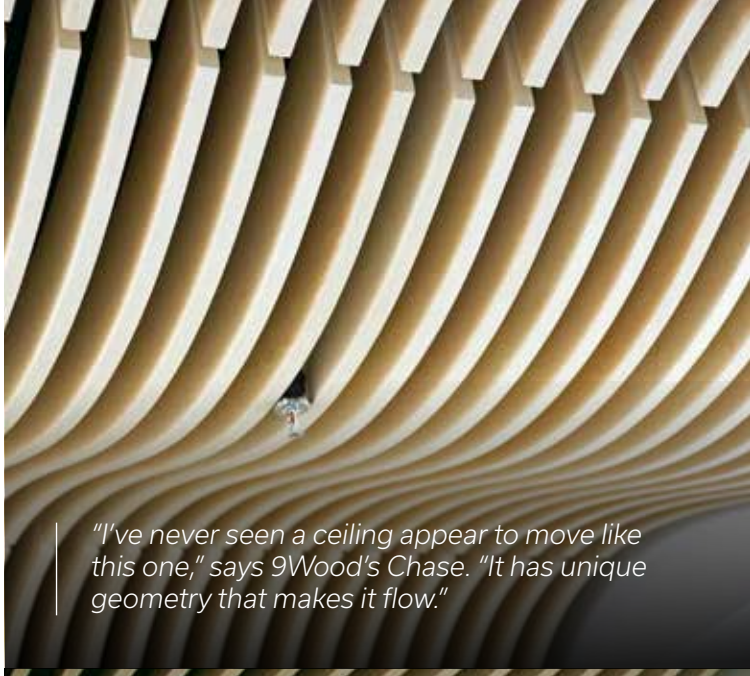
"We would have been cutting t-bar every 8″ or 10″ and installing mains every 1′," says Don Riddell, superintendent at Benton & Overbury. "That would have been a lot to do for every 50′ ceiling bay."

A more creative — and sturdier — approach used cold-formed steel studs for the framing. The ceiling manufacturer supplied a jig, which profiled the bottom of the ceiling wave.

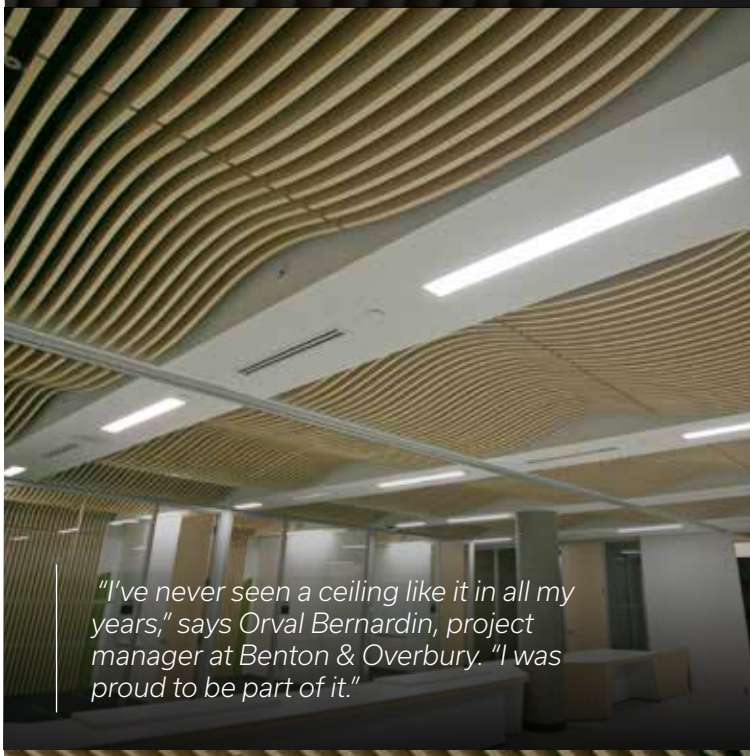
"We used the jig to scribe the wave onto the sides of the bulkheads along each run," Riddell says. "Then, we used the studs to frame perpendicularly across."

The crews used 20-gauge studs and added seismic posts about every 7′ to anchor the frame to the deck. Through careful planning and collaboration, the ceiling subcontractor and manufacturer determined the best control points to prevent restricting the geometry of the ceiling's undulation.

"We have some talented installers who came up with a plan, put up a mockup and did it," says Orval Bernardin, project manager at Benton & Overbury. "We used a lot of imagination to build that ceiling. I've never seen a ceiling like it in all my years."



"I've never seen a ceiling appear to move like this one," says 9Wood's Chase. "It has unique geometry that makes it flow."



"I've never seen a ceiling like it in all my years," says Orval Bernardin, project manager at Benton & Overbury. "I was proud to be part of it."

The ceiling subcontractor furred the back walls forward to align the downward curve of the cross piece wood grille ceilings with the wood grille walls.

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Photography by Adam Hunter/LMN Architects